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A sequential mediation model linking workplace environment and work well-being via job resources and burnout among trainers in Malaysia's Ministry of Health Training Institutes

Nurfazreen Aina Muhamad Nasharudin[1*], Liu Jiakai[1] and Nur Afirah Suhaimi[1]

*Correspondence:
Nurfazreen Aina Muhamad Nasharudin
nurfazreen@upm.edu.my
[1]Faculty of Educational Studies, Universiti Putra Malaysia, Seri Kembangan, Serdang 43300, Selangor, Malaysia

Abstract

Background Work well-being has become a critical concern in healthcare and educational sectors, yet limited research has examined how workplace conditions influence work well-being among health trainers in Malaysia. This study aimed to explore the sequential mediating roles of job resources and burnout in the relationship between workplace environment and work well-being among trainers in the Ministry of Health Training Institutes.

Method A cross-sectional survey was conducted among 651 trainers from 19 ILKKM campuses across Malaysia. Validated instruments were used to assess workplace environment, job resources, burnout, and work well-being. Data were analyzed using Hayes' PROCESS macro (Model 6) with 5,000 bootstrap samples to test the sequential mediation model.

Results The findings revealed that workplace environment positively predicted job resources and negatively predicted burnout, both of which showed statistically significant but modest effects on work well-being. The indirect effects through job resources, burnout, and their sequential pathway were statistically significant. The model explained 39.8% of the variance in work well-being, indicating satisfactory explanatory power.

Conclusions A supportive workplace enhances job resources, reduces burnout, and improves trainers' work well-being. The results provide evidence for the dual pathways of the Job Demands–Resources framework, in which motivational processes strengthen engagement while strain processes are mitigated through adequate resources. Strengthening organizational support and cultivating participative and resourceful work climates may foster sustainable work well-being among healthcare trainers in Malaysia.

Keywords Work well-being, Workplace environment, Job resources, Burnout, Health trainers

1 Introduction

Work well-being has become an important focus in organizational and occupational health psychology because it directly influences employee motivation, engagement, and performance. The World Health Organization reported that a significant proportion of working adults experience mental health challenges that reduce productivity and overall well-being [63]. These challenges are particularly evident in professions requiring emotional labor, such as education and healthcare, where sustained interpersonal demands and heavy workloads increase the risk of stress and burnout [38]. Promoting employees' work well-being is not only a matter of organizational performance but also a global commitment to ensuring good health and decent work as emphasized in the United Nations Sustainable Development Goals (SDGs) [61]. Within this context, advancing the science of work well-being is essential for improving the quality of working life and supporting sustainable professional development.

In Malaysia, concerns regarding occupational well-being among educators and healthcare professionals have become increasingly prominent. Trainers at the Ministry of Health Training Institutes (Institut Latihan Kementerian Kesihatan Malaysia, ILKKM) perform multiple roles as educators and health practitioners, often facing demanding workloads, administrative obligations, and continuous interpersonal engagement that can undermine motivation and satisfaction. Evidence shows that Malaysian educators commonly experience high stress, lower institutional support, and reduced work well-being [58, 66, 67], while studies also document widespread burnout in the teaching profession [27]. Similar pressures are observed among healthcare staff, including heightened burnout and the need for effective coping mechanisms in public hospital settings [54]. Earlier work further indicates that specific teacher groups encounter notable stressors within the Malaysian system [15]. These patterns highlight the importance of examining how the workplace environment shapes the work well-being of ILKKM trainers, who play a crucial role in strengthening the country's healthcare training capacity.

Work well-being reflects an individual's positive psychological functioning within the work context [44, 62]. In the present study, work well-being is further conceptualized from a behavioral perspective, reflecting employees' positive functioning at work as indicated by their task and contextual performance [13, 29]. It encompasses positive states such as satisfaction and engagement, alongside the absence of negative conditions such as stress and burnout [12, 24]. The workplace environment is a major determinant of these outcomes. Within the Job Demands–Resources (JD-R) framework [3], environmental conditions can create demands that deplete energy or provide resources that enhance motivation and resilience. Supportive environments characterized by cooperation, autonomy, and recognition are associated with higher engagement and work well-being, whereas rigid or unsupportive settings heighten strain and emotional exhaustion [2, 38]. When employees perceive their environment as fair and participative, they tend to experience lower burnout and greater satisfaction, reinforcing the central role of the workplace environment in shaping work well-being in educational and healthcare training contexts.

Despite the growing recognition of occupational well-being among educators and healthcare professionals, limited research has specifically examined trainers ILKKM, who operate within demanding educational and healthcare contexts. Previous studies on Malaysian healthcare professionals have highlighted the prevalence of burnout

and associated coping challenges [54], underscoring the need to extend such research to health trainers. Most existing studies have treated stress, burnout, and satisfaction as separate variables rather than integrating them into a comprehensive model [40, 60]. This has left a gap in understanding how workplace environment factors interact to shape work well-being. Considering this, the present study aims to develop an integrated framework grounded in the JD-R model to examine how the workplace environment influences work well-being and to explore the mediating role of burnout [9, 34].

Additionally, examining the sequential relationship between job resources and burnout is essential, as trainers in Malaysia's Ministry of Health Training Institutes face continuous cognitive, emotional, and physical demands that challenge their work well-being. Job resources in these domains help sustain motivation and psychological balance, whereas their depletion leads to exhaustion and disengagement. Understanding how job resources and burnout operate in sequence provides crucial insight into how the workplace environment shapes work well-being and highlights pathways for fostering resilience in healthcare training settings. Importantly, because ILKKM trainers carry both teaching-related and healthcare-related responsibilities, their combined demands and resource needs create a unique work profile that may cause JD–R processes to function differently from those in typical educational or clinical roles, revealing a theoretical gap that has received little attention.

Accordingly, this study aims to develop and test an integrated JD-R-based framework that explains how the workplace environment affects ILKKM trainers' work well-being through the sequential effects of job resources and burnout. The following sections present the theoretical foundations and hypotheses that guide this investigation.

1.1 The relationship between workplace environment and work well-being

The workplace environment plays a crucial role in shaping employees' psychological experiences, motivation, and overall work well-being. Work design research has long emphasized that contextual and structural job features shape employees' motivation, engagement, and work well-being [45]. A supportive and participative workplace environment satisfies individuals' psychological and social needs, thereby enhancing engagement, satisfaction, and organizational commitment. Previous research has shown that improvements in both physical and psychosocial aspects of the workplace environment significantly enhance healthcare professionals' well-being, demonstrating the importance of holistic environmental support [7]. Similarly, a positive psychosocial workplace environment not only contributes to employees' work well-being but also fosters resilience and sustained performance [64]. Furthermore, happiness and well-being are both outcomes and reinforcers of a positive work climate, suggesting a reciprocal relationship between environmental quality and employee flourishing [51].

In this study, the workplace environment comprises three dimensions: Humanistic, Work Relationship, and Bureaucratic. The first two reflect supportive aspects of the climate, whereas the Bureaucratic dimension represents structural constraints and was reverse-coded so that higher scores consistently indicate a more favorable environment. These effects can be understood through the JD–R framework, which highlights that a favorable work environment provides essential resources that help employees maintain energy and motivation in their daily work, thereby enhancing their work well-being [3]. Overall, when employees perceive their workplace as supportive, fair, and participative,

they are more likely to experience higher levels of motivation and well-being, reflecting the general motivational process described in prior literature. Hence, based on these studies, we propose:

H_1 Workplace environment is positively correlated with work well-being.

1.2 The mediating effect of job resources between workplace environment and work well-being

Workplace conditions that encourage collaboration, autonomy, and psychological safety play a critical role in cultivating job resources that sustain employees' motivation and effectiveness. Such environments enable individuals to access sufficient cognitive, emotional, and physical resources to meet professional demands and maintain engagement. Strong supervisor–worker relationships enhance the accessibility of job resources, creating safer and more productive organizational climates [35]. Similarly, favorable workplace conditions promote both internal and external resources, contributing to higher levels of job satisfaction and work well-being [65]. Adequate job resources allow employees to meet expectations efficiently while protecting against psychological strain [43], whereas job resources not only enhance subjective well-being but also function as a core motivational driver within the job demands–resources framework [9]. In line with this perspective, a supportive work environment helps employees build up the resources they rely on to stay motivated and cope effectively with daily job demands. Collectively, these findings highlight that supportive and resource-enabling environments foster psychological resilience and sustained work well-being, underscoring the central role of job resources as a motivational pathway linking workplace environment and work well-being. Hence, based on these studies, we propose:

H_2 Workplace environment is positively correlated with job resources.

H_3 Job resources have a mediating effect between workplace environment and work well-being.

1.3 The mediating role of burnout in the relationship between workplace environment and work well-being

Burnout represents a central psychological response to prolonged exposure to unfavorable or overly demanding workplace environments [33]. In contrast, a resource-enriched and psychologically safe organizational climate can buffer employees against strain by promoting autonomy, recognition, and emotional balance. Excessive bureaucratic rigidity, high workloads, and limited decision-making opportunities, however, tend to accelerate emotional exhaustion and cynicism [5, 38]. Empirical studies consistently demonstrate that insufficient psychosocial support and lack of managerial responsiveness predict higher burnout levels and lower work well-being, particularly among professionals in education and healthcare settings [19, 55, 56, 64]. Conversely, positive and empowering workplace environments can enhance employees' confidence and perceived competence, thereby mitigate fatigue and foster engagement. From a JD–R perspective, inadequate resources make employees more vulnerable to job demands, increasing the likelihood that strain will accumulate and manifest as burnout. Collectively,

these findings suggest that burnout serves as a mediating mechanism linking workplace environment and work well-being, as prolonged exhaustion depletes energy and undermines employees' capacity for effective functioning [2]. Hence, we propose the following hypotheses:

H_4 Workplace environment is negatively correlated with burnout.

H_5 Burnout have a mediating effect between workplace environment and work well-being.

1.4 Comprehensive association among workplace environment, job resources, burnout, and work well-being

Job resources and burnout jointly capture the motivational and strain processes through which the workplace environment exerts its influence on employees' work well-being. Grounded in the JD–R theory and Conservation of Resources (COR) perspective, employees are understood to continuously seek, preserve, and replenish valuable resources that sustain motivation, energy, and psychological stability [2, 21]. When organizations cultivate an enabling climate characterized by trust, flexibility, and managerial support, employees are more likely to access adequate cognitive, emotional, and physical resources that promote engagement, resilience, and professional growth [13, 35]. Such resource-enhancing environments buffer the adverse effects of job demands, strengthening intrinsic motivation and reducing perceived strain [9, 34].

In contrast, settings marked by excessive bureaucracy, rigid hierarchies, and limited autonomy may erode available resources, triggering emotional exhaustion and depersonalization [4, 36]. Burnout, in turn, represents the depletion stage of the resource process, undermining employees' ability to sustain engagement and positive affect, and consequently diminishing work well-being [30]. Therefore, job resources and burnout operate sequentially rather than independently: a resource-enriched environment replenishes employees' psychological capacity, which in turn protects them from burnout and enhances their work well-being. In this way, the sequence from gaining resources to preventing exhaustion reflects how the workplace environment shapes employee functioning through interconnected motivational and strain pathways rather than through isolated effects. This sequential mediation reflects the dual pathways, namely motivational and strain processes, through which the workplace environment shapes sustainable employee functioning. Hence, we predicted that:

H_6 Job resources and burnout sequentially mediate the relationship between Workplace environment and work well-being.

In conclusion, our proposed sequential mediation model delineating the relationship between workplace environment, job resources, burnout, and work well-being is presented in Fig. 1. To validate the aforementioned hypotheses, this study employed a questionnaire survey to examine the relationship between workplace environment and work well-being among ILKKM trainers in Malaysia. Furthermore, the study investigated whether job resources and burnout function as individual and sequential mediators in the relationship between workplace environment and trainers' work well-being.

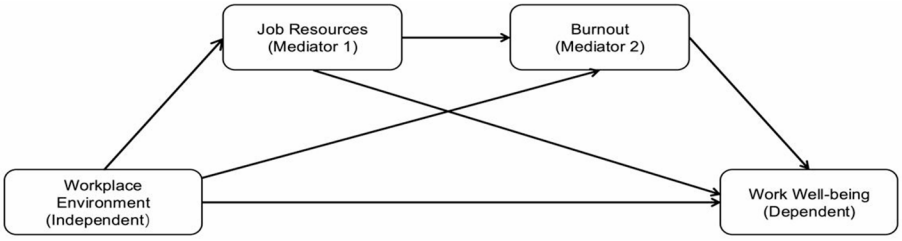

Fig. 1 The proposed sequential mediation model

2 Method

2.1 Participants and procedures

This study adopted a quantitative research design to examine the relationships among workplace environment, job resources, burnout, and work well-being among trainers at ILKKM. Data were collected via an online questionnaire between August and November 2024. Ethical approval was obtained from the National Medical Research Register (NMRR) (NMRR ID-24-00959-IKC) prior to data collection, ensuring full compliance with established ethical standards and research integrity principles.

A total of 651 trainers from 19 ILKKM campuses across Peninsular Malaysia, Sabah, and Sarawak participated in the study. All ILKKM trainers nationwide were invited to take part through an online survey administered via Google Forms. The survey link, together with the study information sheet and consent form, was distributed through institutional email channels by the Health Development and Training Department (Bahagian Pembangunan dan Latihan (BPL), Ministry of Health Malaysia, with a reminder email issued approximately two weeks later to encourage participation. Based on an estimated trainer population of about 900 individuals, the final sample represented an approximate response rate of 72%. Before completing the questionnaire, participants were informed about the study's purpose and procedures, assured of confidentiality and anonymity, and provided electronic informed consent. Participation was voluntary, and no identifying information was collected to protect respondents' privacy.

This approach ensured that all responses remained anonymous and were used solely for research purposes. Following data collection, participants' demographic information was summarized to provide a comprehensive overview of the sample characteristics. A total of 651 participants took part in the study. Among them, 149 were male (22.9%) and 502 were female (77.1%). The majority of participants were aged between 40 and 49 years (40.6%), followed by those aged 50–59 years (28.5%). Regarding work experience, 40.1% of the trainers had worked for 11–20 years, 35.3% for 21–30 years, and 10.6% for more than 30 years. In terms of educational background, 65.0% of participants held a bachelor's degree or diploma, while a smaller proportion (approximately 4%) possessed a master's degree or higher qualification.

2.2 Scales

To ensure that all measurement instruments were culturally and linguistically appropriate for the ILKKM context, the scales underwent a systematic translation and adaptation process. The original English items were translated into Malay with careful attention to conceptual equivalence, followed by a back-translation into English for comparison with the source versions. Three field experts, including senior lecturers and psychology

specialists, reviewed the translated items to assess clarity, cultural fit, and relevance to the ILKKM training environment. A pilot test with 50 ILKKM trainers was then conducted to check item comprehensibility and response consistency. Feedback from the pilot indicated that no further revisions were necessary, and the final Malay version of the scales was used for the main data collection.

To improve model fit, items with low standardized factor loadings (< 0.40) or high modification indices were removed to address potential cross-loadings or redundancy during confirmatory factor analysis (CFA). All retained items demonstrated standardized loadings above 0.50 and were statistically significant ($p < 0.001$), indicating strong item reliability and convergent validity. Model adequacy was evaluated according to established guidelines, which recommend CFI and TLI values above 0.90 (preferably ≥ 0.95), RMSEA values below 0.08, and GFI values above 0.90 as indicative of acceptable to good model fit [6, 18, 23]. Although minor deviations in individual indices are possible in large-sample or complex models, the combination of fit indices suggested that the overall measurement model was robust and theoretically sound. The results of the CFA for each construct are presented below.

2.2.1 Workplace environment

The workplace environment was assessed using a validated questionnaire adapted from a previous study [1], which was further modified to suit the context of Malaysia's health training institutes. The instrument comprised three key dimensions: Bureaucratic, Humanistic, and Work Relationship, representing essential aspects of the organizational climate. The Bureaucratic dimension reflects the degree of structure, rules, and formalization within the organization (e.g., "All employees must follow the established rules and procedures"). Because the original items in this dimension were negatively worded, they were reverse-coded so that higher scores represent a more favorable perception of the workplace environment before analysis. The Humanistic dimension captures autonomy, empowerment, and managerial trust toward employees (e.g., "The management considers employees' ideas when making decisions"), and the Work Relationship dimension assesses the level of warmth, support, and cooperation among colleagues and supervisors (e.g., "Employers support their subordinates"). Each item was rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Seventeen items were retained in the final model, and CFA indicated an acceptable model fit ($\chi^2/df = 5.986$, CFI = 0.997, TLI = 0.996, RMSEA = 0.088, GFI = 0.996). The scale demonstrated high internal reliability Cronbach's $\alpha = 0.923$, confirming that the adapted instrument was valid and appropriate for assessing the workplace environment among ILKKM trainers.

In addition, the model's fit indices further supported the robustness of the measurement structure. Although the RMSEA value (0.088) slightly exceeded the conventional threshold of 0.08, this value remains within the acceptable range for large-sample analyses and complex models [18, 23]. Furthermore, other fit indices, including CFI = 0.997, TLI = 0.996, and GFI = 0.996, were well above the recommended cutoffs, indicating that the model achieved an overall satisfactory fit to the data. Therefore, the measurement model was considered valid and theoretically sound. The slightly elevated RMSEA may be attributed to the multidimensional structure of the scale as well as potential method

effects arising from the mix of positively and negatively worded items, which are known to marginally increase RMSEA values [49].

2.2.2 Work well-being

Work well-being was measured using the Individual Work Performance Questionnaire (IWPQ), a validated instrument designed to assess employees' work-related well-being [29]. This questionnaire evaluates two primary dimensions: task performance (e.g., "I was able to perform my work well with minimal time and effort") and contextual performance (e.g., "I knew how to solve difficult situations and setbacks quickly"). All items were rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). A total of 17 items were retained for analysis. The measurement model demonstrated a good fit to the data (χ^2/df = 3.011, CFI = 0.996, TLI = 0.995, RMSEA = 0.076, GFI = 0.995). Cronbach's α was 0.949, indicating excellent internal consistency.

2.2.3 Job resources

Job resources were measured using an adapted version of the Demand-Induced Strain Compensation (DISC) Questionnaire [10]. This scale captures three dimensions of job resources: cognitive, emotional, and physical. Cognitive resources assess autonomy and opportunities to apply one's skills (e.g., "I have the opportunity to vary complex tasks with simple tasks"), emotional resources evaluate the level of social and emotional support received from colleagues and supervisors (e.g., "I have the opportunity to express my true emotions after a threatening situation occurs, without experiencing negative consequences"), and physical resources measure the adequacy of tools, materials, and physical comfort in the workplace (e.g., "I have adequate technical equipment to accomplish physically strenuous tasks"). All items were rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). After refinement, 13 items were retained. CFA results indicated acceptable model fit (χ^2/df = 3.822, CFI = 0.997, TLI = 0.996, RMSEA = 0.066, GFI = 0.997), with Cronbach's α = 0.932, suggesting high internal reliability.

2.2.4 Burnout

Burnout was assessed using the Shirom–Melamed Burnout Measure (SMBM) [57], which conceptualizes burnout as a multidimensional construct encompassing physical fatigue, emotional exhaustion, and cognitive weariness. Physical fatigue reflects the depletion of physical energy (e.g., "I have no energy for going to work in the morning"), emotional exhaustion indicates the loss of emotional resources and capacity to connect with others (e.g., "I feel emotionally burned out"), and cognitive weariness represents reduced concentration and mental sharpness (e.g., "I have difficulty thinking about complex things"). Responses were recorded on a seven-point Likert scale ranging from 1 (Never) to 7 (Always). Eleven items were retained in the final model. CFA results indicated an excellent model fit (χ^2/df = 2.829, CFI = 0.999, TLI = 0.999, RMSEA = 0.053, GFI = 0.999), and Cronbach's α = 0.952, demonstrating outstanding internal consistency.

A full measurement model was estimated to assess the validity of all study constructs before conducting further analyses. The model demonstrated acceptable overall fit (χ^2/df = 4.438, CFI = 0.917, TLI = 0.917, RMSEA = 0.074, GFI = 0.983), supporting the adequacy of the measurement structure. Convergent validity was confirmed, as all Average

Variance Extracted (AVE) values exceeded the recommended threshold of 0.50 (0.547–0.731). Discriminant validity was further supported by the Heterotrait Monotrait Ratio (HTMT), which ranged from 0.424 to 0.715 and were well below the conservative cutoff of 0.85, indicating that the four latent constructs are empirically distinct. With the measurement properties validated, subsequent statistical analyses were conducted based on the established measurement model.

2.3 Statistical analyses

Data analysis was conducted using SPSS version 26 and Jamovi version 2.6.45. The serial mediation model was tested using PROCESS macro Model 6 in SPSS, with 5,000 bootstrap samples employed to generate bias-corrected 95% confidence intervals [20]. Confirmatory factor analyses (CFAs) were performed through the syntax interface in the Structural Equation Modeling (SEM) module of Jamovi, applying the Diagonally Weighted Least Squares (DWLS) estimation method, which is appropriate for ordinal Likert-scale data. Jamovi was chosen for its integration with the R environment, providing robust estimation for ordinal data and convenient visualization of model fit indices.

3 Results

3.1 Assessment of the extent of common method variance

To examine the potential influence of common method bias, Harman's single-factor test was conducted using exploratory factor analysis without rotation. The analysis extracted five factors with eigenvalues greater than 1, and the first factor accounted for 33.94% of the total variance, which was below the 40% threshold suggested by Podsakoff. Therefore, common method bias was not considered a serious concern in this study [49, 50].

3.2 Examination of multicollinearity

Prior to hypothesis testing, multicollinearity diagnostics were conducted using *Jamovi* (Version 2.6). The variance inflation factor (VIF) values ranged from 1.26 to 1.75, and tolerance values were all above 0.57, well within the recommended thresholds [18]. These results confirmed that there were no multicollinearity concerns among the variables, indicating that all predictors were appropriate for further regression analyses.

3.3 Correlation analysis

Table 1 displays the significant correlations among workplace environment, work well-being, job resources, and burnout. All correlations were statistically significant at the $p < 0.001$ level. Workplace environment was positively associated with work well-being ($r = 0.541$) and job resources ($r = 0.643$) and negatively associated with burnout ($r = -0.430$). These significant interrelationships among the variables provide preliminary support for the proposed hypotheses and justify further analysis using mediation models.

Table 1 Means, standard deviations, and correlations among variables (N= 651)

	Mean	SD	1	2	3	4
1.Workplace environment	3.68	0.66	1			
2.Work well-being	4.03	0.65	0.54***	1		
3.Job resources	3.76	0.70	0.64***	0.55***	1	
4.Burnout	2.96	1.26	-0.43***	-0.44***	-0.41***	1

*** $p < 0.001$

Table 2 Sequential mediation analysis ($N = 651$)

Regression		Model index		Coefficients	
Dependent variable	**Independent variable**	**R^2**	**F**	**β**	**t**
Job resources	Workplace environment	0.41***	458.07	0.68	21.40***
Burnout	Workplace environment	0.21***	88.16	-0.55	-6.30***
	Job resources			-0.40	-4.90***
Work well-being	Workplace environment	0.40***	142.27	0.25	6.29***
	Job resources			0.28	7.45***
	Burnout			-0.11	5.00***

β = Standardized coefficients. ***$p < 0.001$. All variables were standardized

Table 3 Total, direct, and indirect effects of workplace environment on work well-being via job resources and burnout. ($N = 651$)

Path	B	SE	95%CI
Total effect	0.53	0.03	[0.47, 0.59]
Direct effects	0.25	0.04	[0.17, 0.33]
Total indirect effects	0.28	0.04	[0.21, 0.35]
Workplace environment → job resources → work well-being	0.19	0.04	[0.12, 0.26]
Workplace environment → burnout → work well-being	0.06	0.02	[0.03, 0.09]
Workplace environment → job resources → burnout → work well-being	0.03	0.01	[0.01, 0.05]

Bootstrap sample size = 5000. *SE* standard error. *CI* confidence interval

3.4 Examination of the sequential mediation model

Table 2 presents the results of the sequential mediation analysis conducted using Model 6 of PROCESS. The workplace environment significantly predicted job resources (β = 0.675, $t = 21.402$, $p < 0.001$, $R^2 = 0.414$), indicating that a better workplace environment is associated with greater job resources. In turn, both workplace environment (β = −0.546, $t = -6.298$, $p < 0.001$) and job resources (β = −0.404, $t = -4.899$, $p < 0.001$) significantly and negatively predicted burnout ($R^2 = 0.214$), suggesting that supportive environments and sufficient resources help reduce employee burnout.

Finally, work well-being was significantly predicted by workplace environment (β = 0.253, $t = 6.285$, $p < 0.001$), job resources (β = 0.282, $t = 7.447$, $p < 0.001$), and burnout (β = −0.106, $t = 5.997$, $p < 0.001$), with an overall model R^2 of 0.398. All proposed hypotheses were supported by the data. Workplace environment was positively associated with job resources (H_2) and work well-being (H_1) and negatively associated with burnout (H_4). Mediation analyses further indicated that job resources (H_3), burnout (H_5), and the sequential pathway through both variables (H_6) significantly mediated the effect of workplace environment on work well-being. All indirect effects were statistically significant, with 95% confidence intervals excluding zero, supporting the hypothesized sequential mediation model.

3.5 Bootstrap test of the sequential mediation model

A bootstrap analysis using 5000 bias-corrected bootstrap samples was conducted to examine the statistical significance of the indirect effects. As shown in Table 3, the total indirect effect of workplace environment on work well-being through job resources and burnout was significant (B = 0.277, SE = 0.036, 95% CI [0.207, 0.349]).

Specifically, workplace environment influenced work well-being through three significant indirect pathways: (1) via job resources (B = 0.190, SE = 0.036, 95% CI [0.121, 0.261]);

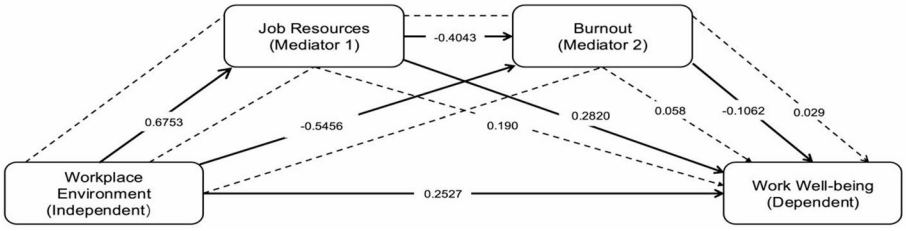

Fig. 2 Mediating effect of job resources and burnout on the relationship between workplace environment and work well-being. → Statistically significant mediation paths

(2) via burnout (B = 0.058, SE = 0.016, 95% CI [0.029, 0.092]); and (3) via the sequential path through job resources and burnout (B = 0.029, SE = 0.010, 95% CI [0.012, 0.052]).

In addition, the direct effect of workplace environment on work well-being remained significant (B = 0.252, SE = 0.040, 95% CI [0.174, 0.331]), indicating partial mediation. This sequential mediation model accounted for a significant portion of variance in work well-being (R^2 = 0.396, F = 142.273, $p < 0.001$). The sequential mediation model is illustrated in Fig. 2.

4 Discussion

4.1 The positive correlation between workplace environment and work well-being

The results confirmed H_1, demonstrating a significant positive relationship between workplace environment and work well-being. A supportive and participative workplace fosters psychological safety, satisfaction, and motivation, contributing to employees' overall well-being. Recent studies have consistently emphasized that positive work environments characterized by autonomy, recognition, and social support enhance job satisfaction and reduce stress-related outcomes [31]. Similarly, previous research identified that educational employees in Malaysia experience better mental health and work engagement when their institutional environment encourages collaboration and professional growth [40]. This pattern is also consistent with evidence showing that Malaysian teachers' psychological well-being is strongly shaped by job control and social support within their psychosocial work environment [25], and that high stress and emotional fatigue are common when such environmental resources are lacking [47].

Furthermore, Malaysian workplace research highlights that transparent and clear communication fosters trust, satisfaction, and positive perceptions of the organizational climate [28]. In collectivistic Asian contexts, supportive interpersonal relationships and constructive communication tend to amplify the influence of workplace environment on well-being, which helps explain the strong direct association observed in the current study [39].

4.2 The mediating role of job resources between workplace environment and work well-being

H_2 and H_3 were supported, indicating that job resources play a crucial mediating role between workplace environment and work well-being. Employees working in a resourceful and empowering environment can draw upon cognitive, emotional, and physical resources that enhance their engagement and psychological resilience. Job resources such as autonomy and social support have been shown to significantly improve both performance and psychological well-being [31]. In addition, evidence indicates that job

resources buffer the negative effects of job demands, reinforcing the motivational process described in the JD–R model [17].

This pattern is also consistent with international findings showing that resource-related factors often exert particularly strong positive effects on employee motivation and well-being in collectivistic Asian contexts, where interpersonal support and feedback carry substantial motivational weight [39]. Malaysian research further indicates that emotional and physical demands strongly predict subsequent burnout and psychological strain [41, 42]. In high-demand environments such as ILKKM, access to adequate job resources becomes critical for sustaining motivation and reducing strain. Within this context, resources such as training materials, peer support, and fair workload allocation may enhance trainers' sense of competence and engagement, thereby fostering higher levels of work well-being.

4.3 The mediating role of burnout between workplace environment and work well-being

The findings also supported H_4 and H_5, confirming that burnout mediates the relationship between workplace environment and work well-being. Poor or unsupportive environments characterized by excessive demands, limited control, and insufficient recognition can heighten emotional exhaustion and disengagement. This pattern is consistent with evidence that unfavorable working conditions are closely linked to higher burnout and reduced psychological health [30, 59]. In interpreting these results, it is notable that the bureaucratic dimension of the workplace environment did not significantly predict burnout. This aligns with research showing that extensive formalization is common and often regarded as routine in public-sector organizations [53], and that structured procedures can support coordination rather than undermine well-being [8]. Prior findings also indicate that bureaucratic constraints rarely produce direct psychological strain; their effects tend to be conditional or indirect [52].

By contrast, burnout among educators and health-related professionals is more strongly triggered by heavy instructional workloads, administrative burdens, curriculum pressure, and resource shortages [32, 37, 46]. ILKKM trainers face similar realities, balancing teaching duties, assessment responsibilities, and clinical oversight, which constitute more immediate and taxing demands than procedural routines. These task-related pressures are likely to overshadow the influence of bureaucratic factors, helping explain why the bureaucratic dimension had minimal impact on burnout in this study.

4.4 The sequential mediation of job resources and burnout between workplace environment and work well-being

The findings supported H_6, showing that the workplace environment influences work well-being through a sequential process in which a favorable environment enhances job resources and these resources subsequently reduce burnout. When trainers are provided with sufficient cognitive, emotional, and physical resources, they are better able to manage the combined teaching, assessment, and clinical demands of their work, which prevents the gradual accumulation of strain and promotes sustained engagement. This pattern is consistent with the dual-process mechanism described in the JD–R framework, where resources stimulate motivation and reduced strain enhances well-being [17, 30]. As resources accumulate, employees maintain higher levels of focus and energy and are less likely to experience the emotional exhaustion that undermines well-being.

The results also showed that the workplace environment retained a significant direct effect on work well-being after accounting for job resources and burnout. This suggests that additional mechanisms contribute to employees' positive experiences beyond the two mediators examined. Malaysian workplace research highlights that transparent communication, clarity of information, and supportive interpersonal interactions enhance employees' emotional comfort and satisfaction [28]. Moreover, in collectivistic cultural contexts such as Malaysia, interpersonal support and constructive feedback amplify the impact of environmental conditions on employee motivation and well-being [39]. These contextual factors may therefore explain why the workplace environment in this study continued to exert a direct influence on work well-being even after job resources and burnout were controlled.

5 Contributions and implications

This study makes several theoretical and practical contributions. First, it is among the earliest empirical investigations focusing on health trainers within ILKKM, professionals who simultaneously serve as educators and healthcare practitioners. While prior research has largely centered on medical officers, nurses, and other clinical practitioners [40, 59], the well-being of health trainers has been overlooked despite their dual responsibilities in education and healthcare service. By addressing this gap, the present study extends the JD-R model to the health training context and provides new insight into how job resources and burnout sequentially shape employees' work well-being [2, 11, 14]. This contribution advances understanding of work-related well-being in hybrid professional settings and offers a theoretical foundation for improving organizational practices in educational healthcare institutions.

The findings show that humanistic managerial support and positive working relationships are central to promoting work well-being among ILKKM trainers. When the work climate encourages open communication, mutual trust, and supportive interactions, trainers are better able to draw on the cognitive, emotional, and physical resources they need to handle the combined demands of teaching, clinical responsibilities, and administrative tasks. These results are consistent with prior research demonstrating that supportive and resource-rich environments help sustain employee engagement and well-being [15], whereas high-demand settings tend to increase emotional exhaustion and reduce work quality [16, 48, 14]. An important pattern in our results is that the pathway through job resources was the strongest among the indirect effects. This suggests that efforts to strengthen trainers' access to practical and professional resources such as clearer task planning, a more balanced work rhythm, or more consistent guidance may lead to the most immediate improvements in work well-being.

Based on these findings, ILKKM is encouraged to continue developing a work climate that supports resource building and reduces unnecessary strain. Providing adequate professional guidance, promoting transparent communication, and giving trainers appropriate autonomy in managing their teaching and training responsibilities can help maintain motivation and well-being. The strong direct effect from workplace environment to work well-being also indicates that factors such as fairness, relationship quality, and clarity of information play an important role beyond job resources and burnout. Previous studies have shown that even in settings with high levels of formalization, supportive managerial behavior and clear communication can substantially enhance employees'

perceptions of their environment and overall well-being [22]. Strengthening teamwork, improving transparency in procedures, and involving trainers more meaningfully in decisions that affect their work may further support a healthier and more effective training environment.

6 Conclusion

This study demonstrated that the workplace environment influences work well-being through the sequential mediation of job resources and burnout. A supportive and well-structured environment allows ILKKM trainers to access the cognitive, emotional, and physical resources needed to manage their dual educator–clinician responsibilities, thereby reducing exhaustion and enhancing work well-being. Although situated in Malaysia's public health training system, the findings reflect core JD–R processes and therefore offer insights relevant to public-sector training institutions internationally. The results also echo global efforts to promote healthier and more sustainable working lives, as emphasized in the SDGs.

Within the Malaysian context, the study highlights the importance of fostering a supportive and resource-enabling work climate. Providing clear guidance, encouraging transparent communication, and granting appropriate autonomy may help trainers better balance teaching, administrative, and professional demands. Since many public-sector training institutions worldwide share similar organizational characteristics, these findings may inform efforts in other countries seeking to strengthen employee work well-being in educational and healthcare training settings.

7 Study limitations and future research directions

This study has several limitations that are specific to its design and context. The sample consisted solely of ILKKM trainers, a professional group that combines teaching and clinical responsibilities within Malaysia's public-sector healthcare training system. This hybrid role structure is distinctive and may shape how job resources, burnout, and workplace environment are experienced, which limits the generalizability of the findings to other educational or healthcare settings. In addition, ILKKM operates under strong institutional regulation and formalized procedures, which may influence employees' perceptions of humanistic support, working relationships and bureaucracy in ways that differ from less regulated organizations. The study also relied on a cross-sectional, self-report survey, which restricts causal interpretation and may introduce common method bias despite controls applied during data collection. These study-specific constraints should be considered when interpreting the results and designing future research.

Future studies could validate the proposed model through longitudinal or cross-cultural designs to better clarify the causal and contextual dynamics among workplace environment, job resources, burnout and work well-being [34]. To reduce potential response bias from self-report measures, future research may include multiple sources of data such as supervisor evaluations, peer assessments or objective performance indicators. Researchers may also examine additional psychological or organizational mechanisms, including leadership style, organizational justice or coping strategies, to broaden the understanding of factors that shape employees' work well-being [26]. As workplace environments continue to change with digitalization and hybrid work arrangements, it

would also be valuable to explore how these developments influence the well-being of educators and healthcare trainers.

In addition, future research could take a closer look at how different types of job resources, such as cognitive, emotional and physical resources, contribute at different stages of the resource process. This would help clarify how resources accumulate or diminish over time and how these shifts affect burnout and work well-being. Since ILKKM trainers combine responsibilities as educators and clinicians, comparative studies with groups working exclusively in educational or exclusively in clinical settings may reveal whether hybrid roles create unique patterns of resource use and strain. Because ILKKM operates within Malaysia's public-sector healthcare system, further research could also examine how organizational culture, regulatory requirements and procedural practices influence employees' access to and use of job resources. These contextual factors may produce workplace dynamics that were not fully captured in the present study.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1007/s44202-025-00561-y.

Supplementary material 1.

Author contributions

Nurfazreen Aina Muhamad Nasharudin contributed to the conceptualization, study design, supervision, and overall manuscript revision.Liu Jiakai was responsible for data analysis, interpretation, and drafting of the manuscript.Nur Afirah Suhaimi contributed to questionnaire development, data collection, and participant coordination.

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Data availability

The datasets generated and analyzed during the current study are not publicly available due to privacy and institutional restrictions but are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval for this research was obtained from the National Medical Research Register (NMRR) (NMRR ID-24-00959-IKC) prior to data collection. All participants were informed about the study's purpose, procedures, and their rights, and provided written informed consent before data collection. Confidentiality and anonymity were strictly maintained throughout the study.

Informed consent

Informed consent was obtained from all participants prior to data collection.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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References

1. Abun D, Nicolas TM, Apollo PE, Magallanes T, Encarnacion MJ. (2021). Employees' self-efficacy and work performance of employees as mediated by work environment. SSRN. https://doi.org/10.2139/ssrn.3958247
2. Bakker AB, Demerouti E. Job demands–resources theory: taking stock and looking forward. J Occup Health Psychol. 2017;22(3):273–85. https://doi.org/10.1037/ocp0000056.
3. Bakker AB, Demerouti E. Job demands–resources theory: frequently asked questions. J Occup Health Psychol. 2024;29(3):188–200. https://doi.org/10.1037/ocp0000376.
4. Baek S, Kim J, Park H. Focusing on the mediation role of burnout in the link between workplace safety climate and employee well-being. J Social Service Res. 2025. https://doi.org/10.1080/01634372.2024.2372111.

5. Bianchi R, Verkuilen J, Schonfeld IS, Hakanen JJ, Laurent E. Is burnout a depressive condition? A 14-sample meta-analytic and bifactor analytic study. Clin Psychol Sci. 2021;9(4):579–97. https://doi.org/10.1177/2167702620979597.
6. Browne MW, Cudeck R. Alternative ways of assessing model fit. In: Bollen KA, Long JS, editors. Testing structural equation models. Sage; 1993. pp. 136–62.
7. Campos-Andrade C, Hernández-Fernaud E, Lima ML. A better physical environment in the workplace means higher well-being? A study with healthcare professionals. PsyEcology. 2013;4(1):89–110. https://doi.org/10.1174/217119713805088324.
8. Chen CA, Rainey HG. Personnel formalization and the enhancement of teamwork: A public–private comparison. Public Manage Rev. 2013;16(7):945–68. https://doi.org/10.1080/14719037.2013.770057.
9. Claes S, Vandepitte S, Clays E, Annemans L. How job demands and job resources contribute to our overall subjective well-being. Front Psychol. 2023;14:1220263. https://doi.org/10.3389/fpsyg.2023.1220263.
10. De Jonge J, Dormann C. The DISC model: Demand–Induced strain compensation mechanisms in job stress. In: Dollard MF, Winefield AH, Winefield HR, editors. Occupational stress in the service professions. Taylor & Francis; 2003. pp. 43–74.
11. Demerouti E, Bakker AB, Nachreiner F, Schaufeli WB. The job demands–resources model of burnout. J Appl Psychol. 2001;86(3):499–512. https://doi.org/10.1037/0021-9010.86.3.499.
12. Diener E, Oishi S, Tay L. Advances in subjective well-being research. Nat Hum Behav. 2018;2(4):253–60. https://doi.org/10.1038/s41562-018-0307-6.
13. Dumitriu S, Tudorache M, Popescu C. The role of the workplace environment in shaping employees' well-being: evidence from Romanian organizations. Sustainability. 2025;17(6):2613. https://doi.org/10.3390/su17062613.
14. Galanakis MD, Tsitouri E. Positive psychology in the working environment: job demands–resources theory, work engagement and burnout: A systematic literature review. Front Psychol. 2022;13:1022102. https://doi.org/10.3389/fpsyg.2022.1022102.
15. Ghani MZ, Ahmad AC, Ibrahim S. Stress among special education teachers in Malaysia. Procedia – Social Behav Sci. 2014;114:4–13. https://doi.org/10.1016/j.sbspro.2013.12.648.
16. Golu F, Cotel A, Sava NI, Oprea B, Condrea S. The link between job demands, burnout, and the self-undermining of healthcare employees during the COVID-19 pandemic: an underestimated threat? Healthc (Basel Switzerland). 2022;10(8):1408. https://doi.org/10.3390/healthcare10081408.
17. Gynning M, Eriksson H, Blom V. Do job resources buffer the harmful effects of job demands? Curr Psychol. 2025. https://doi.org/10.1016/j.copsyc.2025.102505. Advance online publication.
18. Hair JF, Black WC, Babin BJ, Anderson RE. Multivariate data analysis. 8th ed. Cengage Learning; 2019.
19. Hakanen JJ, Schaufeli WB. Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. J Affect Disord. 2012;141(2–3):415–24. https://doi.org/10.1016/j.jad.2012.02.043.
20. Hayes AF. Introduction to Mediation, Moderation, and conditional process analysis: A Regression-Based approach (Methodology in the social Sciences). 2nd ed. New York, NY: The Guilford Press; 2018.
21. Hobfoll SE, Halbesleben J, Neveu J-P, Westman M. Conservation of resources theory in the organizational context: the reality of resources and their consequences. Annual Rev Organizational Psychol Organizational Behav. 2018;5:103–28. https://doi.org/10.1146/annurev-orgpsych-032117-104640.
22. Houtgraaf G, Borst RT. Does bureaucracy demotivate public servants? An assessment of psychological mechanisms and the moderating role of age. Public Manage Rev. 2025;1–25. https://doi.org/10.1080/14719037.2025.2504723.
23. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Struct Equation Modeling: Multidisciplinary J. 1999;6(1):1–55. https://doi.org/10.1080/10705519909540118.
24. Huppert FA, So TTC. Flourishing across europe: application of a new conceptual framework for defining well-being. Soc Indic Res. 2013;110(3):837–61. https://doi.org/10.1007/s11205-011-9966-7.
25. Ibrahim RZAR, Zalam WZM, Foster B, Afrizal T, Johansyah MD, Saputra J, Bakar AA, Dagang MM, Ali SNM. Psychosocial work environment and teachers' psychological well-being: the moderating role of job control and social support. Int J Environ Res Public Health. 2021;18(14):7308. https://doi.org/10.3390/ijerph18147308.
26. Inceoglu I, Thomas G, Chu C, Plans D, Gerbasi A. Leadership behavior and employee well-being: an integrated review and a future research agenda. Leadersh Q. 2018;29(1):179–202. https://doi.org/10.1016/j.leaqua.2017.12.006.
27. Jamaludin II, Woon YH. Burnout among school teachers. Int J Acad Res Bus Social Sci. 2019;9(13):340–7. https://doi.org/10.6007/IJARBSS/v9-i13/6862.
28. Khalid N, Umiera H. Transparent communication in Malaysian workplace: employee perspectives via organizational transparency and communication climate theory. Quantum J Social Sci Humanit. 2025;6(4):28–42. https://doi.org/10.55197/qjssh.v6i4.736.
29. Koopmans L, Bernaards CM, Hildebrandt VH, Schaufeli WB, De Vet HCW, Van der Beek AJ. Construct validity of the individual work performance questionnaire. J Occup Environ Med. 2014;56(3):331–7. https://doi.org/10.1097/JOM.0000000000000113.
30. Lara-Moreno M, González-Morales MG, Peiró JM. How psychosocial risks, engagement, and burnout impact work well-being. Front Psychol. 2025;16:12024121. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC12024121/.
31. Lee K, Kim J, Park S. Job demands–resources model and performance. Front Psychol. 2023;14:1194018. https://doi.org/10.3389/fpsyg.2023.1194018.
32. Lee KY, Zakaria N, Zakaria N. Examining the impact of burnout on hospital nurses engaged in shift work: insights from a nationwide cross-sectional study in Malaysia. SAGE Open Nurs. 2024;10. https://doi.org/10.1177/23779608241245212.
33. Lee RT, Ashforth BE. A meta-analytic examination of the correlates of the three dimensions of job burnout. J Appl Psychol. 1996;81(2):123–33. https://doi.org/10.1037/0021-9010.81.2.123.
34. Lesener T, Gusy B, Wolter C. The job demands–resources model: A meta-analytic review of longitudinal studies. Work Stress. 2019;33(1):76–103. https://doi.org/10.1080/02678373.2018.1529065.
35. Loudoun R, Biggs A, Robertson A, Townsend K, Troth A. Supervisor–worker relationships and the work environment: development and validation of a construction-specific measure. Saf Sci. 2024;177:106587. https://doi.org/10.1016/j.ssci.2024.106587.
36. Mallick P, Chowdhury A, Bandyopadhyay S. Work environment, burnout, and intent to leave: lessons from healthcare professionals post-COVID-19. J Am Heart Association. 2024;13(5):e034527. https://doi.org/10.1161/JAHA.123.034527.

37. Mapano L, Ubayubay R. Teaching workload and burnout experiences among the elementary school teachers of Talakag-I district. Int J Res Publications. 2024;144., Article 6137. https://doi.org/10.47119/IJRP1001441320246137.
38. Maslach C, Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. World Psychiatry. 2016;15(2):103–11. https://doi.org/10.1002/wps.20311.
39. Mazzetti G, Robledo E, Vignoli M, Topa G, Guglielmi D, Schaufeli WB. Work engagement: A meta-analysis using the job demands–resources model. Psychol Rep. 2023;126(3):1069–107. https://doi.org/10.1177/00332941211051988.
40. Munusamy S, Al-Dubai SAR, Aini N, Jalil SSA, Omar A. A systematic review on mental health and its associated factors among educators in Malaysia. BMC Psychol. 2024;12(1):297. https://pmc.ncbi.nlm.nih.gov/articles/PMC11437627/.
41. Nasharudin NAM, Idris MA, Loh MY. The effect of job demands on health and work outcomes: A longitudinal study among Malaysian employees. PsyCh J. 2020;9(1):10–20. https://doi.org/10.1002/pchj.378.
42. Nasharudin NAM. Longitudinal effect of emotional and physical demands on health-related behaviour among Malaysian workers. Int J Acad Res Bus Social Sci. 2021;11(12):1788–802. https://doi.org/10.6007/IJARBSS/v11-i12/11905.
43. Nilsen M, Kongsvik T. Health, safety, and well-being in platform-mediated work: A job demands and resources perspective. Saf Sci. 2023;163:106130. https://doi.org/10.1016/j.ssci.2023.106130.
44. Page KM, Vella-Brodrick DA. The what, why, and how of employee well-being. J Happiness Stud. 2009;10(4):389–406. https://doi.org/10.1007/s10902-008-9093-3.
45. Parker SK, Morgeson FP, Johns G. One hundred years of work design research: looking back and looking forward. J Appl Psychol. 2017;102(3):403–20. https://doi.org/10.1037/apl0000106.
46. Patel N, Andy A. Addressing pharmacist burnout and staffing shortages: A review of challenges and solutions. Int J Multidisciplinary Res. 2024;6:1–9. https://doi.org/10.36948/ijfmr.2024.v06i02.38294.
47. Pau K, Ahmad A, Tang H-Y, Jusoh A, Perveen A, Tat K. Mental health and wellbeing of secondary school teachers in Malaysia. Int J Learn Teach Educational Res. 2022;21(6):50–70. https://doi.org/10.26803/ijlter.21.6.4.
48. Pelly D, Daly M, Delaney L, Doyle O. Worker stress, burnout, and wellbeing before and during the COVID-19 restrictions in the united Kingdom. Front Psychol. 2022;13:823080. https://doi.org/10.3389/fpsyg.2022.823080.
49. Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP. Common method biases in behavioral research: A critical review of the literature and recommended remedies. J Appl Psychol. 2003;88(5):879–903. https://doi.org/10.1037/0021-9010.88.5.879.
50. Podsakoff PM, MacKenzie SB, Podsakoff NP. Sources of method bias in social science research and recommendations on how to control it. Ann Rev Psychol. 2012;63(1):539–69. https://doi.org/10.1146/annurev-psych-120710-100452.
51. Qubaisi HS. (2017, November). Happiness affecting the workplace environment and employees' well-being. Paper presented at the Abu Dhabi International Petroleum Exhibition & Conference, Abu Dhabi, United Arab Emirates. https://doi.org/10.2118/188662-MS
52. Quratulain S, Khan AK. Red tape, resigned satisfaction, public service motivation, and negative employee attitudes and behaviors: testing a model of moderated mediation. Rev Public Personnel Adm. 2015;35(4):307–32. https://doi.org/10.1177/0734371X13511646.
53. Rainey HG. Understanding and managing public organizations. 4th ed. Jossey-Bass; 2009.
54. Rezuan NA, Jalil A, A. A., Mohd Noordin Z. Prevalence of and coping mechanisms against mental and psychological burnout among healthcare professionals in a Malaysian public hospital: A cross-sectional study. Malaysian Family Physician. 2025;20:19. https://doi.org/10.51866/oa.755.
55. Salvagioni DAJ, Melanda FN, Mesas AE, González AD, Gabani FL, Andrade SM. Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. PLoS ONE. 2017;12(10):e0185781. https://doi.org/10.1371/journal.pone.0185781.
56. Scholze A, Hecker A. The job demands–resources model as a theoretical lens for the bright and dark side of digitization. Comput Hum Behav. 2024;155:108177. https://doi.org/10.1016/j.chb.2024.108177.
57. Shirom A, Melamed S. A new conceptualization of burnout: the development and validation of the Shirom–Melamed burnout measure (SMBM). In: O'Donovan AM, editor. Contemporary psychological research on job stress. Nova Science; 2006. pp. 1–25.
58. Tai KL, Ng YG, Lim PY. Illness, stress and associated risk factors among educators in Malaysia. PLoS ONE. 2019;14(5):e0217430. https://doi.org/10.1371/journal.pone.0217430.
59. Teoh K, Singh J, Medisauskaite A, Hassard J. Doctors' perceived working conditions, psychological health and patient care: A meta-analysis of longitudinal studies. Occup Environ Med. 2023;80(2):61–9. https://doi.org/10.1136/oemed-2022-108486.
60. Thomas NS, Ahmad NA, Mohd Fakhruddin F. Exploring the issue of teacher burnout in Malaysian educational settings. ANP J Social Sci Humanit. 2024;5(1):25–35. https://doi.org/10.53797/anp.jssh.v5i1.4.2024.
61. United Nations. Transforming our world: the 2030 agenda for sustainable development. United Nations; 2015.
62. Warr P. How to think about and measure psychological well-being. In: Sinclair RR, Wang M, Tetrick LE, editors. Research methods in occupational health psychology: Measurement, design, and data analysis. Routledge/Taylor & Francis Group; 2013. pp. 76–90.
63. World Health Organization. Mental health and work: Impact, issues, and good practices. WHO; 2022.
64. Zhang X, Zhou H, Yang L, Wang Y. The influence of psychosocial work environment, personal perceived health and job crafting on nurses' well-being: A cross-sectional survey study. BMC Nurs. 2024;23:373. https://doi.org/10.1186/s12912-024-02041-5.
65. Zhenjing G, Chupradit S, Ku KY, Nassani AA, Haffar M. Impact of employees' workplace environment on employees' performance: A multi-mediation model. Front Public Health. 2022;10:890400. https://doi.org/10.3389/fpubh.2022.890400.
66. Zin NIM, Sulong RM, Zainudin ZN. Psychological wellbeing among teachers in malaysia: the relationship between burnout, resilience and school factors. Int J Acad Res Bus Social Sci. 2023;13(12):5015–25. https://doi.org/10.6007/IJARBSS/v13-i12/2023.
67. Zulkifli Z, Hashim IHM, Yahaya M. Teachers' wellbeing in malaysia: A review. Int J Acad Res Progressive Educ Dev. 2022;11(1):703–12. https://doi.org/10.6007/IJARPED/v11-i1/12262.

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